AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in the captioned patent application:

Listing of Claims:

1. (Currently Amended) A method of reducing noise in a speech signal, comprising:

receiving ~~applying~~ at least two versions of said speech signal at a first filter; ~~to a first filter, said first filter~~

outputting by said first filter a speech reference signal comprising a desired signal and a noise contribution, and at least one noise reference signal comprising a speech leakage contribution and a noise contribution;

applying a filtering operation to said at least one noise reference signal; and

subtracting from said speech reference signal said filtered at least one noise reference signal to provide an output version of said speech signal having reduced noise therein,

whereby said filtering operation of said at least one noise reference signal is performed with one or more filters having filter coefficients configured to minimize a weighted sum of the speech distortion energy and the residual noise energy in said output version of said speech signal, said speech distortion energy being the energy of said speech leakage contributions and said residual noise energy being the energy of said noise contributions in said speech reference signal and in said at least one noise reference signal.

2. (Currently Amended) The method of claim 1, wherein at least two microphones are provided, and wherein the method further comprises:

receiving said speech signal at said at least two microphones; and

providing to said first filter a version of said speech signal from each of said at least two microphones. ~~each said microphone configured to provide a version of said speech signal to said first filter.~~

3. (Previously Presented) The method of claim 1, wherein said first filter is a spatial pre-processor filter comprising:

      a beamformer filter; and

      a blocking matrix filter.

4. (Currently Amended) The method of claim 3, <u>further comprising:</u>

      <u>outputting by said beamformer filter</u> ~~wherein~~ said speech reference <u>signal; and</u> ~~signal is output by said beamformer filter, and wherein~~

      <u>outputting by said blocking matrix filter</u> said at least one noise reference <u>signal.</u> ~~signal is output by said blocking matrix filter.~~

5. (Previously Presented) The method of claim 1, further comprising:

      delaying said speech reference signal before performing said subtraction of said filtered at least one noise reference signal from said speech reference signal.

6. (Previously Presented) The method of claim 1, further comprising:

      applying a filtering operation to said speech reference signal; and

      subtracting said filtered speech reference signal and said at least one noise reference signal from said speech reference signal to provide said output version of said speech signal.

7. (Previously Presented) The method of claim 1, further comprising:

      adapting said filter coefficients so as to take in to account one or more of said speech leakage contribution signal and said desired signal.

8.   (Cancelled)

9. (Previously Presented) A signal processor for reducing noise in a speech signal, comprising:

a first filter configured to receive two versions of said speech signal, and to output a speech reference signal and at least one noise reference signal, wherein said speech reference signal comprises a desired signal and a noise contribution, and wherein said at least one noise reference signal comprises a speech leakage contribution and a noise contribution;

a second filter configured to filter said at least one noise reference signal; and

a summer configured to subtract said at least one filtered noise reference signal from said speech reference signal to provide an output version of said speech signal having reduced noise therein,

wherein said second filter has filter coefficients configured to minimize a weighted sum of the energy of said speech leakage contribution and the energy of said noise contributions in said output version of said speech signal.

10. (Previously Presented) The signal processor of claim 9, wherein said first filter is a spatial pre-processor filter comprising:

a beamformer filter; and

a blocking matrix filter.

11. (Previously Presented) The signal processor of claim 10, wherein said beamformer filter is a delay-and-sum beamformer.

12.   (Cancelled)

13. (Previously Presented) The signal processor of claim 9, wherein said signal processor is implemented in a prosthetic hearing device.

14. (Previously Presented) The signal processor of claim 9, wherein said second filter is further configured to filter said speech reference signal, and wherein said summer is configured to subtract said filtered speech reference signal and said at least one filtered noise reference signal from said speech reference signal to provide said output version of said speech signal.

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15. (Previously Presented) The signal processor of claim 9, wherein said filter coefficients are adaptive so as to take in to account one or more of said speech leakage contribution and said desired signal.

16. (Currently Amended) A signal processor configured to reduce noise in a speech signal, comprising:

a means means for filtering at least two versions of said speech signal, said filtering means configured to output a speech reference signal comprising a desired signal and a noise contribution, and at least one noise reference signal comprising a speech leakage contribution and a noise contribution;

a means means for filtering said at least one noise reference signal; and

a means means for subtracting said at least one filtered noise reference signal from said speech reference signal so as to output a version of said speech signal having reduced noise therein,

wherein said means for filtering said at least one noise reference signal is configured to minimize a weighted sum of the energy of said speech leakage contribution and the energy of said noise contributions in said output version of said speech signal.

17. (Previously Presented) The signal processor of claim 16, wherein said means for filtering said at least two versions of said speech signal is a spatial pre-processor filter comprising:

a beamformer filter; and

a blocking matrix filter.

18. (Previously Presented) The signal processor of claim 17, wherein said speech reference signal is output by said beamformer filter, and wherein said at least one noise reference signal is output by said blocking matrix filter.

19. (Previously Presented) The signal processor of claim 16, further comprising:

      means for delaying said speech reference signal before performing said subtraction of said at least one filtered noise reference signal from said speech reference signal.

20. (Previously Presented) The signal processor of claim 16, further comprising:

      means for filtering said speech reference signal; and

      means for subtracting said filtered speech reference signal and said at least one noise reference signal from said speech reference signal to provide said output version of said speech signal.

21. (Previously Presented) The signal processor of claim 16, further comprising:

      means for adapting said filtering of said noise reference signal so as to take in to account one or more of said speech leakage contribution and said desired signal.